

**Notice of Allowability**

Application No.

10/608,478

Examiner

Anatoly Vortman

Applicant(s)

IWAMOTO ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE & IDS filed on 01/25/05.
2. ☒ The allowed claim(s) is/are 1-12.
3. ☒ The drawings filed on 27 June 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>01/25/05</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                               | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

## REASONS FOR ALLOWANCE

### *Continued Examination Under 37 CFR 1.114 and Information Disclosure Statement*

1. A request for continued examination (RCE) under 37 CFR 1.114 to consider an IDS, including the fee set forth in 37 CFR 1.17(e), was filed in this application on 01/25/05 after allowance (10/22/04). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. The information disclosure statement (IDS) filed concurrently with the RCE on 01/25/05 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the IDS is being considered by the examiner.

2. The following is an examiner's statement of reasons for allowance:

The allowability resides in the overall structure of the device as recited in independent claim 1, and at least in part, because claim 1 recites a specific composition of the fusible wire alloy, i.e. "an alloy composition of 30 to 70% Sn, 0.3 to 20% Sb, and a balance Bi".

The aforementioned limitations in combination with all remaining limitations of independent claim 1, are believed to render independent claims 1 and 2 and all claims dependent thereon patentable over the art of record.

Furthermore, the Applicant has established unexpected results (i.e. the liquidus temperature of the alloy is about 150° C, wherein the width  $\Delta T$  of the solid-liquid coexisting region is 7° C or narrower) over the claimed ranges of said composition ingredients by

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comparing a sufficient number of tests both inside and outside the claimed ranges (see “Examples” presented on p. 20-30 of the specification of the instant application), thus showing the criticality of the claimed ranges. *In re Hill*, 128 USPQ 197 (CCPA 1960).

US/6,064,293 disclosed fuse element made of tertiary Sn-Sb-Bi alloy comprising 36% of Sn, Sb, and Bi (see claims 1 and 2), but did not disclose specific ranges for Sn, Sb, and Bi, as recited in claim 1 of the instant application.

JP/4-12428 disclosed fuse element made of binary or higher alloy of Pb and Sn, In, Sb, Bi, Cd, Zn, Pd, Pt, Ag, Au, or Cu, but did not disclose that said alloy is a tertiary Sn-Sb-Bi alloy as recited in claim 1 of the instant application.

Furthermore, the aforementioned IDS filed on 01/25/05 has cited the following references that are considered to be close to the present invention: JP/2003-147461, JP/02025533, and US/5833921. All of these references teach tertiary Sn-Sb-Bi alloys having ranges of constituents that are overlapping or close to the ranges of constituents as claimed in the instant application. However, JP/2003-147461 has a publication date of 05/21/03, which is after the foreign priority date of the instant application, which is 07/11/02, and therefore is not a prior art. Regarding the JP/02025533, and US/5833921, the references are from fields of endeavor, which are different than field of endeavor of the present invention. JP/02025533 teaches an alloy used for making a die, and US/5833921 teaches an alloy for making a solder composition used for joining components. Therefore, the artisan in the fuse art (a field of endeavor the instant application) would not have been motivated at the time the invention was made to adjust the ranges of constituents disclosed in the aforementioned references in order to arrive to the ranges as claimed in the instant application.

None of the cited references either taken alone or in combination is believed to render the present invention unpatentable as claimed.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anatoly Vortman whose telephone number is 571-272-2047. The examiner can normally be reached on Monday-Friday, between 10:00 am and 6:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Lynn Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anatoly Vortman  
Primary Examiner  
Art Unit 2835

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